FOR Archives

Stan Scott, 4:05 PM 12/7/9..., MODIS night-time packets 1

Date: Mon, 7 Dec 92 16:05:51 EST
From: Stan Scott <stan@eosscott.gsfc.nasa.gov>
Subject: MODIS night-time packets
To: afleig@ltpsun.gsfc.nasa.gov, emasuoka@ltpsun.gsfc.nasa.gov
X-Mailer: LeeMail 1.2.4

Gentlemen
I do not know if you are aware of a discussion going on in Code 421 regarding MODIS night-time data packets. Ed Chang says they are considering putting two scans in each MODIS night packet, as compared to a single scan in the day packet. This would reduce the number of packets per second at night to a number EDOS can handle.

Would this change have a substantial impact on the design of MODIS science software? (Ed, this is what I have been trying to get you on the phone about for some time now.)

Al, you sent me a message about what you can or should do regarding the Handbook. I don't think there is much more at this time. I appreciated getting your comments at the DPWG. Since I was simply being the messenger (presenter) at the DPWG, I have no pride in ownership for the tutorial papers in the Handbook which was designed by the departed Mr. Bredeson. That is, I have no trouble at all in removing the tutorial articles from the Handbook and making them available electronically to any interested parties. There is an audience for this kind of information- interest has come from Data Panel members and from Headquarters. Since Ted and I make joint decisions on things around here, we will have to discuss how to proceed with the Handbook given the DPWG comments.

Stan

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We replied that the proposed change would not have any adverse impact on MODIS Ia processing.

Memorandum

To: *Ed Masuoka*
From: *Tom Goff*
Subject: *MODIS Night Mode Data Packets*
Date: *8 December 1992*
Copies: *Lloyd Carpenter*
Phil Ardanuy

Reference: Facsimile transmission of 7 Dec. 1992 from Stan Scott with Ed's notes appended.

Background: Currently available information proposes that each mirror scan of MODIS science data is divided into 1354 scan frames. Each frame consists of the readout of all detectors for a 1 kilometer IFOV across scan and 10 IFOVs along track. Each frame of day mode data (83 detectors by 10 IFOVs by 12 bits) is divided into two segments and placed into two CCSDS packets that are 5136 bits in length, including packet overhead. Each frame of night mode data (17 detectors by 10 IFOVs by 12 bits) is currently placed into a single CCSDS packet 2196 bits in length, including packet overhead. The proposed change would place two frames of night mode science data into a single CCSDS packet, resulting in a 4344 bit length.

From a Modis Level-1A (and subsequent levels) viewpoint, placing two frames of night mode date into one telemetry packet would have very little effect - provided that an even number of night scan science frames (1354) is always provided. If not (an abnormal case), it would be possible to allow for two lengths of night mode packets or a bit pattern fill to accomplish the signaling of one or two night mode frames per packet. The MODIS Level-1A data product generation program will check for Level-0 packet lengths and contents and will use the scan and frame counters to determine the packet location within a full mirror swath, scan cube of data. Duplicate data frames will be accounted for in the processing and will produce a notice in the MODIS log but will not effect the final scan cube quality.

See the Detailed CCSDS Science Data Format diagrams contained within the MODIS Main Electronics Module PDR view graphs (and elsewhere) for additional details.